



Time series of the globally averaged (ocean-only) concentration of atmospheric water vapor expressed as a percentage deviation from its mean seasonal value. Results are shown for both satellite observations (black) and from climate model simulations (red). A positive trend is apparent from the 1980s to present, owing to the increase in ocean surface temperatures over this period. The large year-to-year deviations reflect the occurrence of anomalously warm El Niño events (1997–1998) and cold La Niña events (1988–1989, 1999–2000), and global cooling following the 1991 eruption of Mt. Pinatubo (1992–1993). (Adapted from B.J. Soden *et al.*, 2005, *Science*, vol. 310, pp. 841–844.)